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 IBM Technical Disclosure Bulletins

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<u>L4</u>	L3 and amorphous	15	<u>L4</u>
<u>L3</u>	L2 and (second near composition)	18	<u>L3</u>
<u>L2</u>	L1 and ((different or differing) near2 compositions)	107	<u>L2</u>
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☐ 1. Document ID: US 6780766 B2

L8: Entry 1 of 1

File: USPT

Aug 24, 2004

US-PAT-NO: 6780766

DOCUMENT-IDENTIFIER: US 6780766 B2

TITLE: Methods of forming regions of differing composition over a substrate

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw. D.
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Terms	Documents
L4 and (quantum near2 dots)	1

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L8: Entry 1 of 1

File: USPT

Aug 24, 2004

DOCUMENT-IDENTIFIER: US 6780766 B2

TITLE: Methods of forming regions of differing composition over a substrate

Abstract Text (1):

The invention includes methods of forming regions of differing composition over a substrate. A first material having a pattern of at least one substantially amorphous region and at least one substantially crystalline region is provided over the substrate. The at least one substantially amorphous region of the first material replaced with a second material, while the at least one substantially crystalline region is not replaced. The invention also includes a circuit construction comprising an electrically conductive material extending within openings in a substantially crystalline electrically insulative material, and in which the electrically conductive material corresponds to quantum dots.

Brief Summary Text (2):

The invention pertains to circuit constructions comprising quantum dots and/or quantum anti-dots, and also pertains to methods of forming regions of differing composition over substrates.

Brief Summary Text (5):

Nanodevices include, for example, quantum dots and anti-dots. A quantum dot is a particle of matter in which addition or removal of an electron changes its properties in some useful way.

Brief Summary Text (6):

Quantum dots and anti-dots can have numerous applications. For instance, quantum dots and anti-dots can significantly increase the density of electronic devices, which can increase performance of the devices. Quantum dots and anti-dots may be particularly useful in high-density memory and storage media. Specifically, a quantum dot or anti-dot can be incorporated into data storage devices. If the position of an electron within a quantum dot or anti-dot changes a state of the dot or anti-dot, the quantum dot or anti-dot can represent a byte of data.

Brief Summary Text (10):

In one aspect, the invention encompasses a circuit construction. The construction comprises a substrate and a substantially crystalline electrically insulative material over the substrate. A plurality of openings extend within the substantially crystalline electrically insulative material, and an electrically conductive material is within the openings and corresponds to quantum dots.

Brief Summary Text (11):

In one aspect, the invention encompasses methods of forming regions of differing composition over a substrate. A material is formed over the substrate. A pattern of at least one substantially amorphous region and at least one substantially crystalline region is formed within the material. The material has a first composition. The at least one substantially crystalline region defines at least one first region over the substrate, and the at least one substantially amorphous region defines at least one second region over the substrate. The at least one

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L8: Entry 1 of 1

File: USPT

Aug 24, 2004

US-PAT-NO: 6780766

DOCUMENT-IDENTIFIER: US 6780766 B2

TITLE: Methods of forming regions of differing composition over a substrate

DATE-ISSUED: August 24, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Basceri; Cem	Boise	ID		
Derderian; Garo J.	Boise	ID		

US-CL-CURRENT: 438/676

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Search Results - Record(s) 1 through 9 of 9 returned.

☐ 1. Document ID: US 6780766 B2

L7: Entry 1 of 9

File: USPT

Aug 24, 2004

US-PAT-NO: 6780766

DOCUMENT-IDENTIFIER: US 6780766 B2

TITLE: Methods of forming regions of differing composition over a substrate

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 2. Document ID: US 6764637 B2

L7: Entry 2 of 9

File: USPT

Jul 20, 2004

US-PAT-NO: 6764637

DOCUMENT-IDENTIFIER: US 6764637 B2

TITLE: Methods of joining polymers using ultrasonic energy

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 3. Document ID: US 6652766 B1

L7: Entry 3 of 9

File: USPT

Nov 25, 2003

US-PAT-NO: 6652766

DOCUMENT-IDENTIFIER: US 6652766 B1

TITLE: Articles to aid the ironing of fabrics and methods of use

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 4. Document ID: US 6649191 B1

L7: Entry 4 of 9

File: USPT

Nov 18, 2003

US-PAT-NO: 6649191

DOCUMENT-IDENTIFIER: US 6649191 B1

**** See image for Certificate of Correction ****

TITLE: Orally administrable compositions comprising cation cross-linked polysaccharide and a polymer digestible in the lower gastrointestinal tract

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw D
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☐ 5. Document ID: US 6491840 B1

L7: Entry 5 of 9

File: USPT

Dec 10, 2002

US-PAT-NO: 6491840

DOCUMENT-IDENTIFIER: US 6491840 B1

TITLE: Polymer compositions having specified PH for improved dispensing and improved stability of wrinkle reducing compositions and methods of use

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw D
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☐ 6. Document ID: US 6428933 B1

L7: Entry 6 of 9

File: USPT

Aug 6, 2002

US-PAT-NO: 6428933

DOCUMENT-IDENTIFIER: US 6428933 B1

TITLE: Lithium ion batteries with improved resistance to sustained self-heating

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw D
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☐ 7. Document ID: US 6195326 B1

L7: Entry 7 of 9

File: USPT

Feb 27, 2001

US-PAT-NO: 6195326

DOCUMENT-IDENTIFIER: US 6195326 B1

TITLE: Phase-change type medium for use in high density recording

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw D
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☐ 8. Document ID: US 6051096 A

L7: Entry 8 of 9

File: USPT

Apr 18, 2000

US-PAT-NO: 6051096

DOCUMENT-IDENTIFIER: US 6051096 A

TITLE: Carbonized wood and materials formed therefrom

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw D
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☐ 9. Document ID: US 5482580 A

L7: Entry 9 of 9

File: USPT

Jan 9, 1996

US-PAT-NO: 5482580

DOCUMENT-IDENTIFIER: US 5482580 A

TITLE: Joining of metals using a bulk amorphous intermediate layer

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw D
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File: USPT

Jan 9, 1996

DOCUMENT-IDENTIFIER: US 5482580 A

TITLE: Joining of metals using a bulk amorphous intermediate layerAbstract Text (1):

Two pieces of metal are joined together using an amorphous metallic joining element. In the joining operation, the joining element is placed between the two pieces to be joined. The joining element and adjacent regions of the pieces being joined are given a joining processing sequence of heating to a joining temperature, forcing the two pieces together for a period of time, and cooling. The joining element has a composition that is amorphous after the processing is complete. The joining element composition is also selected such that, after interdiffusion of elements from the pieces being joined into the joining element during processing, the resulting composition is amorphous after cooling.

Assignee Name (1):Amorphous Alloys Corp.Assignee Group (1):Amorphous Alloys Corp. Laguna Niguel CA 02Brief Summary Text (2):

This invention relates to the joining of metals, and, more particularly, to the use of an amorphous intermediate bonding element to effect the joint.

Brief Summary Text (9):

In accordance with the invention, there are furnished a first piece to be joined having a first piece composition and a second piece to be joined having a second piece composition. A joining processing sequence is selected, including a joining temperature, joining time, joining pressure, and cooling rate. In conjunction with this selection, a metallic joining element is selected and furnished. The metallic joining element has an initial amorphous composition within a joinability compositional range and is preferably formed of at least three elements. The joinability compositional range is characterized by the retention of the amorphous state after the joining processing sequence is performed with the metallic joining element in contact with the first piece and the second piece. The method further includes placing the joining element between the first piece and the second piece, and processing the region of the joining element and the adjacent portions of the first piece and the second piece with the joining processing sequence.

Brief Summary Text (10):

In one embodiment, the joining element is selected to have an initial composition that is retained in the amorphous state after the joining processing sequence is complete. There is also an associated composition of the joining element that is related to the initial composition as the result of the surface-contact diffusion into the initial composition of further alloying elements from either the first piece or the second piece during the joining processing sequence. The associated compositions are also retained in the amorphous state at the conclusion of the joining processing sequence.

Brief Summary Text (11):

Thus, the final joined structure includes the two pieces to be joined and the amorphous joining element between them. The joining element is fully amorphous, and the joined pieces retain their original structures. The amorphous metal aids in achieving a good bond by flowing in a viscous manner above its glass transition temperature during bonding and cooling, to fill any voids that would otherwise be present at the interface and to negate residual stresses formed due to the difference in thermal expansion coefficients of the amorphous metal and the pieces being joined. After bonding, the amorphous metal has a high strength. The interdiffusional bond between the base metals being joined and the amorphous bonding element and the strength of the bonding element result in a strong joint, regardless of the thickness of the joint. That is, the joint does not rely for its strength on a triaxial stress state as in the case of brazed joints, although such a triaxial stress state may be present for the joint of the invention if the joint is thin compared to its length and depth.

Detailed Description Text (2):

FIG. 1 schematically illustrates a structure 20 formed by joining together a first piece of metal 22 and a second piece of metal 24. Extending between the pieces of metal 22 and 24 and acting as a joining medium is an amorphous metallic joining element 26. The first piece of metal 22 and the joining element 26 are in contact at a first interface 28, and the second piece of metal 24 and the joining element are in contact at a second interface 30. The pieces of metal 22 and 24 are shown in a fractional view and not to scale, so that the dimensional size of the joining element 26 cannot be determined from the drawing. The joining element 26 may be of any desired thickness, ranging from less than a micrometer to an inch or more, without losing strength.

Detailed Description Text (4):

FIGS. 2(a)-(c) illustrate the composition of the structure 20 as a function of distance through the structure perpendicular to the interfaces 28 and 30. Referring to FIG. 2(a), the first piece 22 has a composition that is substantially completely A material. A small amount of the A material has diffused across the interface 28 into a first modified region 32 of the joining element 26. Referring to FIG. 2(b), the second piece 24 has a composition that is substantially completely B material. A small amount of the B material has diffused across the interface 30 into a second modified region 34 of the joining element 26. Referring to FIG. 2(c), the joining element 26 has a composition that is substantially completely J material in a central unmodified region 36. In the regions 32 and 34 of the joining element 26 adjacent to the respective interfaces 28 and 30, the joining element has a composition that is not completely J material, but instead is a mixture of J and A material in the first modified region 32 and a mixture of J and B material in the second modified region 34. The different compositions to which portions of the joining element may be modified during processing are herein collectively termed "associated compositions".

Detailed Description Text (5):

It is important that, even with the compositional change in the regions 32 and 34, the initial composition and the associated compositions of the joining element be substantially fully amorphous in the regions 32, 34, and 36. By remaining substantially amorphous throughout its complete extent, the joining element 26 maintains the ability to flow in a glassy manner during the joining operation and retains its excellent strength and corrosion-resistance properties after joining is complete. A key feature of the joining processing discussed subsequently is ensuring that the entire joining element 26 remains amorphous.

Detailed Description Text (6):

It has been previously known to use a layer of amorphous material to bond two articles together, as described in U.S. Pat. No. 4,621,031. In that case, care was

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☐ 1. Document ID: US 6780766 B2

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File: USPT

Aug 24, 2004

US-PAT-NO: 6780766

DOCUMENT-IDENTIFIER: US 6780766 B2

TITLE: Methods of forming regions of differing composition over a substrate

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De
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☐ 2. Document ID: US 6764637 B2

L7: Entry 2 of 9

File: USPT

Jul 20, 2004

US-PAT-NO: 6764637

DOCUMENT-IDENTIFIER: US 6764637 B2

TITLE: Methods of joining polymers using ultrasonic energy

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De
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☐ 3. Document ID: US 6652766 B1

L7: Entry 3 of 9

File: USPT

Nov 25, 2003

US-PAT-NO: 6652766

DOCUMENT-IDENTIFIER: US 6652766 B1

TITLE: Articles to aid the ironing of fabrics and methods of use

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De
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☐ 4. Document ID: US 6649191 B1

L7: Entry 4 of 9

File: USPT

Nov 18, 2003

US-PAT-NO: 6649191

DOCUMENT-IDENTIFIER: US 6649191 B1

**** See image for Certificate of Correction ****

TITLE: Orally administrable compositions comprising cation cross-linked polysaccharide and a polymer digestible in the lower gastrointestinal tract

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De
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☐ 5. Document ID: US 6491840 B1

L7: Entry 5 of 9

File: USPT

Dec 10, 2002

US-PAT-NO: 6491840

DOCUMENT-IDENTIFIER: US 6491840 B1

TITLE: Polymer compositions having specified PH for improved dispensing and improved stability of wrinkle reducing compositions and methods of use

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De
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☐ 6. Document ID: US 6428933 B1

L7: Entry 6 of 9

File: USPT

Aug 6, 2002

US-PAT-NO: 6428933

DOCUMENT-IDENTIFIER: US 6428933 B1

TITLE: Lithium ion batteries with improved resistance to sustained self-heating

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De
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☐ 7. Document ID: US 6195326 B1

L7: Entry 7 of 9

File: USPT

Feb 27, 2001

US-PAT-NO: 6195326

DOCUMENT-IDENTIFIER: US 6195326 B1

TITLE: Phase-change type medium for use in high density recording

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De
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☐ 8. Document ID: US 6051096 A

L7: Entry 8 of 9

File: USPT

Apr 18, 2000

US-PAT-NO: 6051096

DOCUMENT-IDENTIFIER: US 6051096 A

TITLE: Carbonized wood and materials formed therefrom

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw De
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☐ 9. Document ID: US 5482580 A

L7: Entry 9 of 9

File: USPT

Jan 9, 1996

US-PAT-NO: 5482580

DOCUMENT-IDENTIFIER: US 5482580 A

TITLE: Joining of metals using a bulk amorphous intermediate layer

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw D
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☐ 1. Document ID: US 6780766 B2

L6: Entry 1 of 5

File: USPT

Aug 24, 2004

US-PAT-NO: 6780766

DOCUMENT-IDENTIFIER: US 6780766 B2

TITLE: Methods of forming regions of differing composition over a substrate

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw De
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☐ 2. Document ID: US 6652766 B1

L6: Entry 2 of 5

File: USPT

Nov 25, 2003

US-PAT-NO: 6652766

DOCUMENT-IDENTIFIER: US 6652766 B1

TITLE: Articles to aid the ironing of fabrics and methods of use

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw De
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☐ 3. Document ID: US 6491840 B1

L6: Entry 3 of 5

File: USPT

Dec 10, 2002

US-PAT-NO: 6491840

DOCUMENT-IDENTIFIER: US 6491840 B1

TITLE: Polymer compositions having specified PH for improved dispensing and improved stability of wrinkle reducing compositions and methods of use

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw De
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☐ 4. Document ID: US 6428933 B1

L6: Entry 4 of 5

File: USPT

Aug 6, 2002

US-PAT-NO: 6428933

DOCUMENT-IDENTIFIER: US 6428933 B1

TITLE: Lithium ion batteries with improved resistance to sustained self-heating

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw D
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☐ 5. Document ID: US 6051096 A

L6: Entry 5 of 5

File: USPT

Apr 18, 2000

US-PAT-NO: 6051096

DOCUMENT-IDENTIFIER: US 6051096 A

TITLE: Carbonized wood and materials formed therefrom

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw D
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Terms	Documents
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☐ 1. Document ID: US 6780766 B2

L5: Entry 1 of 3

File: USPT

Aug 24, 2004

US-PAT-NO: 6780766

DOCUMENT-IDENTIFIER: US 6780766 B2

TITLE: Methods of forming regions of differing composition over a substrate

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 2. Document ID: US 6195326 B1

L5: Entry 2 of 3

File: USPT

Feb 27, 2001

US-PAT-NO: 6195326

DOCUMENT-IDENTIFIER: US 6195326 B1

TITLE: Phase-change type medium for use in high density recording

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 3. Document ID: US 5482580 A

L5: Entry 3 of 3

File: USPT

Jan 9, 1996

US-PAT-NO: 5482580

DOCUMENT-IDENTIFIER: US 5482580 A

TITLE: Joining of metals using a bulk amorphous intermediate layer

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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